EPA/ROD/R05-99/524
1999

EPA Superfund
Record of Decision:

US NAVY AVIONICS CENTER
EPA ID: IN4170023499
OU 00
INDIANAPOLIS, IN
07/28/1999

Decision Document

for

AOC 15 - Building 1100

Naval Air Warfare Center

Indianapolis, Indiana

Southern Division

Naval Facilities Engineering Command

Contract Number N62467-94-D-0888

Contract Task Order 0012

July 1999

DECISION DOCUMENT
FOR
AOC 15 - BUILDING 1100

NAVAL AIR WARFARE CENTER
INDIANAPOLIS, INDIANA

COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT

Submitted to:
Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive
North Charleston, South Carolina 29406

Submitted by:
Tetra Tech NUS, Inc.
661 Andersen Drive
Foster Plaza 7
Pittsburgh, Pennsylvania 15220

CONTRACT NUMBER N62467-94-D-0888
CONTRACT TASK ORDER 0012

JULY 1999

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ACRONYMS

AOC	Area of Concern
ARAR	Applicable or Relevant and Appropriate Requirements
BCT	BRAC Clean-up Team
BRAC	Base Realignment and Closure
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CIP	Community Involvement Plan
CFR	Code of Federal Regulations
COPC	Chemicals of Potential Concern
DCE	Dichloroethene
IDEM	Indiana Department of Environmental Management
IR	Installation Restoration
mg/kg	milligram per kilogram
NAVFAC	Naval Facilities Engineering
NAWC	Naval Air Warfare Center Command
NCP	National Contigency Plan
OSHA	Occupational Safety and Health Administration
PCB	Polychlorinated Biphenyl
PCE	Tetrachloroethene
PRG	Preliminary Remediation Goal
RAB	Restoration Advisory Board
RBC	Risk Based Concentration
RI	Remedial Investigation
RCRA	Resource Conservation and Recovery Act
SOUTHDIV	Southern Division, Naval Facility Engineering Command
SSL	Soil Screening Level
TCA	1,1,1-Trichloroethane
TCE	Trichloroethene
USEPA	U.S. Environmental Protection Agency
USGS	United States Geological Survey
VOC	Volatile Organic Compound

1.0 DECLARATION OF THE DECISION DOCUMENT

1.1 SITE NAME AND LOCATION

AREA OF CONCERN FIFTEEN (AOC15)
BUILDING 1100
NAVAL AIR WARFARE CENTER (NAWC) INDIANAPOLIS
INDIANAPOLIS, INDIANA

1.2 STATEMENT OF BASIS AND PURPOSE

This Decision Document presents the selected remedial action for Building 1100 (AOC15) NAWC Indianapolis, Indianapolis, Indiana, developed in accordance with CERCLA, as amended by SARA, to the extent practicable, and the National Contingency PIan. This decision is based on the administrative record for this Site, at the Warren Library, Indianapolis, Indiana.

The State of Indiana and the U.S. EPA concur on the selected remedy.

1.3 ASSESSMENT OF THE SITE

Actual or threatened releases of hazardous substances from this Site, if not addressed by implementing the response action selected in this Decision Document, may present an imminent and substantial endangerment to public health, welfare, or the environment.

1.4 DESCRIPTION OF THE SELECTED REMEDY

AOC 15 encompasses contamination in the mechanical testing area, Building 1100. Based on current Site conditions it has been determined that based future risk to human health and environment would be within acceptable limits assuming continued industrial uses. Therefore, no further remedial action beyond those institutional (i.e. land use) controls specified in this document is planned.

The major components of those institutional controls selected for implementation include:

- Restricting future land use to non-residential purpose to specifically include, but not limited to, the prohibition of playgrounds, day care facilities and facilities for the elderly.

- Retention of a right of access by the Navy, and Federal and State regulators for purposes of undertaking future environmental investigations, inspections and/or remedial actions.

1.5 STATUTORY DETERMINATION

Because this remedy will result in contamination remaining on-site, the Navy will conduct a review every five years after the commencement of remedial action to ensure that the remedy continues to provide adequate protection of human health and the environment.

1.6 DECLARATION

The selected remedy is protective of human health and the environment, complies with Federal and State requirements that are legally applicable or relevant and appropriate to the remedial action, and is cost-effective. This remedy utilizes alternative solutions and treatment technologies to the maximum extent practical for this site. However, because active treatment of the principal threats of the site was not found to be practical, this remedy does not satisfy the statutory preference for treatment as a principal element of the remedy. The size, location, and amount of contamination found at AOC 15 precludes a remedy in which contaminants could be treated effectively.

Carl Loop — 9/2/99 Date

Carl Loop, US Navy, Southern Division (SOUTHNAVFACENGCOM)
BCT Member

Concurrence:

Denise Boone — 9/8/99 Date

Denise Boone, USEPA, Region V
BCT Member

Sean Grady — 9/2/99 Date

Sean Grady, Indiana Department of Environmental Management
BCT Member

2.0 DECISION SUMMARY

2.1 SITE NAME, LOCATION, AND DESCRIPTION

NAWC Indianapolis is located in Marion County, east of downtown Indianapolis within a predominantly residential/commercial area (See Figure 2-1). NAWC Indianapolis is bordered by East 21st Street to the north, Arlington Avenue to the west, East 16th Street to the south, and a small waterway, Windsor Branch, to the east. Most of the commercial establishments within the immediate vicinity of NAWC Indianapolis are located along East 21st Street or Arlington Avenue. Businesses in the area include gas stations, car washes, dry cleaners, and office buildings. The areas immediately beyond the businesses lining East 21st and Arlington Avenue are predominantly residential, as are the areas south and east of the NAWC.

In late 1995, the Department of Defense decided to place the NAWC Indianapolis on the base realignment and closure list. This initiated the conversion of the facility from a government-owned and operated facility to the private sector. The NAWC Indianapolis is currently under the direction of Raytheon, under lease from the City of Indianapolis, who, in turn, leases the property from the U.S. Government. Figure 2-2 shows a layout of NAWC Indianapolis and the location of AOC 15.

The ground surface at NAWC Indianapolis is generally flat, sloping slightly from the northern boundary toward the southeast. Surface water drainage at the facility mostly occurs as overland flow during heavy precipitation events. This overland flow is collected and routed through a storm sewer system to two discharges locations: (1) a nearby stream to the southeast of the facility via permitted spillways and an off-site storm sewer system; and (2) a water retention pond in the southwest portion of the site. The retention pond was constructed to facilitate surface water infiltration and to alleviate ponded water on the facility grounds.

The unconsolidated glacial overburden is approximately 150 feet thick at the facility and is comprised of three aquifers or aquifer zones, namely the shallow aquifer zone, middle aquifer and deep aquifer. Each of these varies in thickness, composition, and horizontal extent throughout the site area. The shallow aquifer may be unconfined or semi-confined in some areas where it is near to the ground surface or where it is not overlain by till or other low permeability materials. The shallow aquifer ranges in thickness from 0.5 to 25 feet; the middle aquifer ranges in thickness from 1 to 34 feet; and the deep aquifer ranges in thickness from 5 to 26 feet. The shallow and middle aquifers are only believed to be horizontally continuous on the eastern and southern portions of NAWC Indianapolis, whereas the deep aquifer is

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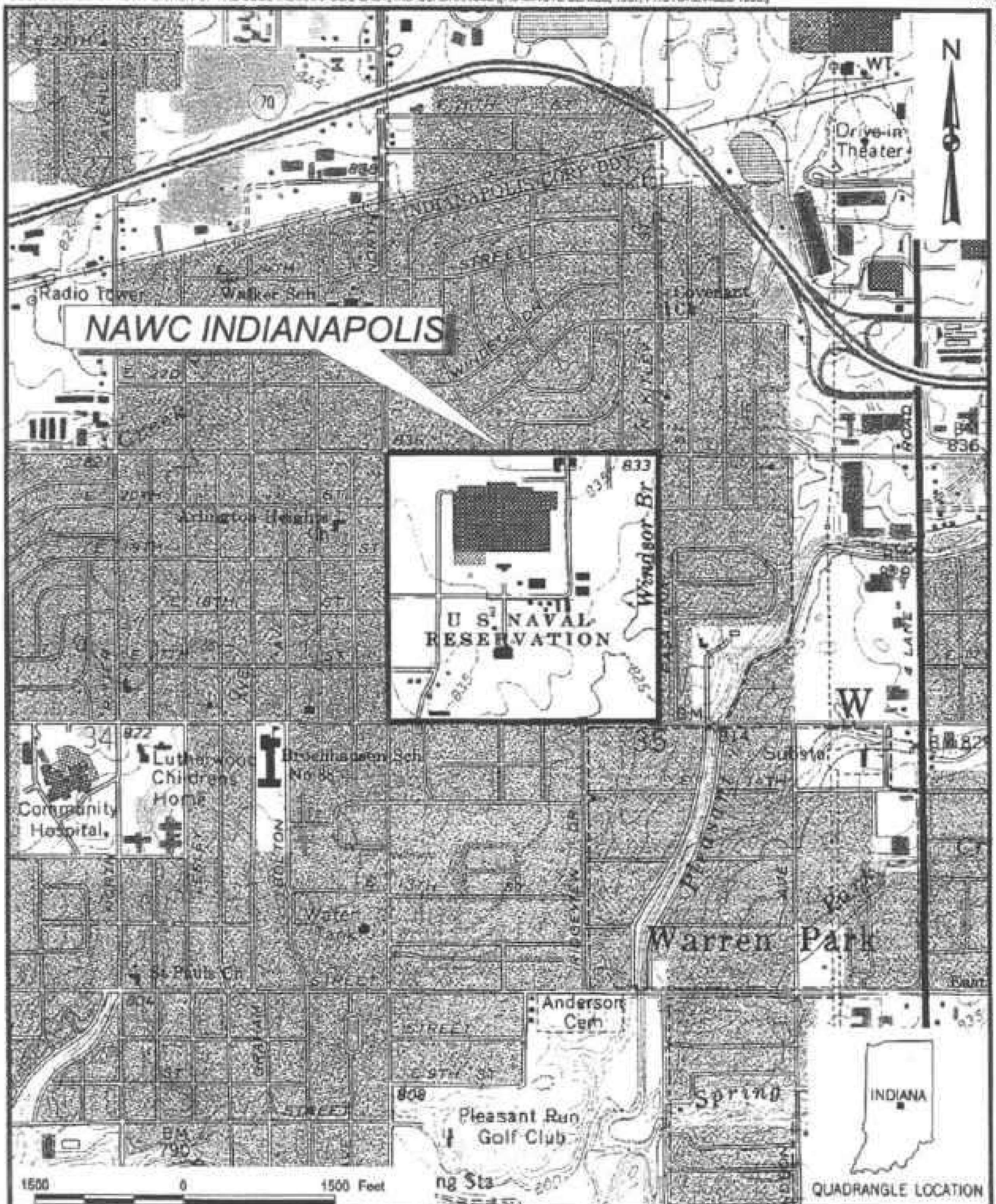
SOURCE: BASEMAP IS A PORTION OF THE USGS INDIANAPOLIS EAST, IND QUADRANGLE (7.5 MINUTE SERIES, 1967, PHOTOREVISED 1980.)



DRAWN BY D. PERRY	DATE 17-SEP-98			CONTRACT NUMBER
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COST/SCHEDULE-AREA				APPROVED BY DATE
SCALE AS NOTED				DRAWING NO. FIGURE 2-1 REV 0

P:\GIS\71737173_PROPOSED_PLAN.APR 17-NOV-98 DNP LOCATION MAP LAYOUT

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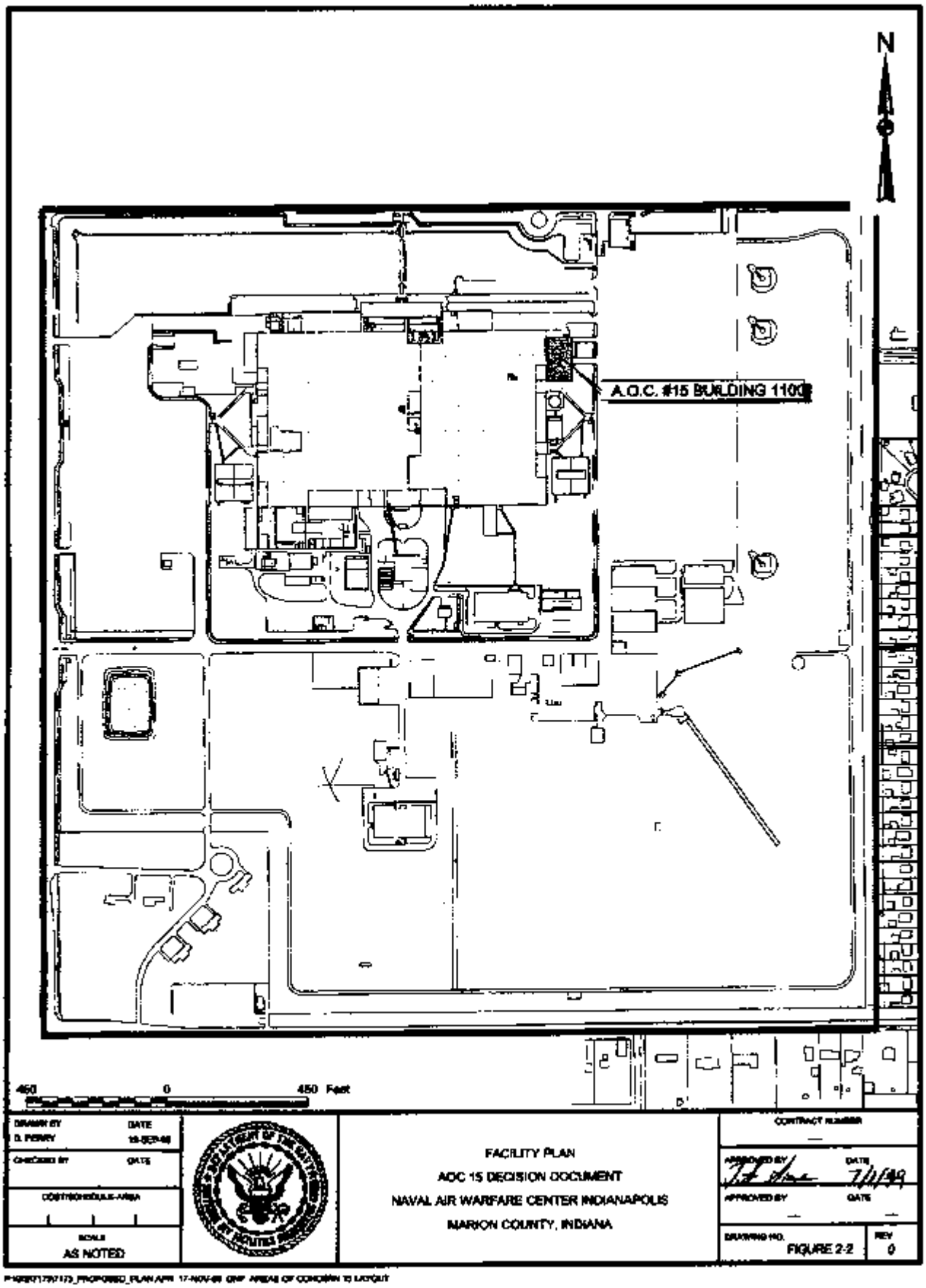
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NAVAL AIR WARFARE CENTER INDIANAPOLIS
MARION COUNTY, INDIANA
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FIGURE 2-2
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expected to be horizontally continuous throughout the entire NAWC. Each of these aquifer zones are separated by low permeable glacial till aquitards. The aquitard between the shallow and middle aquifers ranges in thickness between 15 to 19 feet and the aquitard between the middle and deep aquifer ranges between 23 and 41 feet thick.

The groundwater flow direction across the facility in the shallow and middle aquifer zones is generally to the southeast and south, while flow in the deep aquifer is southwest. It is likely that groundwater in the shallow aquifer discharges into Windsor Branch and Pleasant Run to the east and southeast of the facility. The average horizontal hydraulic gradient for the shallow aquifer was 0.0071 ft/ft on December 10, 1996 and 0.0116 ft/ft on September 27, 1997. The average horizontal hydraulic gradient is 0.014 ft/ft in the middle aquifer, and 0.005 ft/ft in the deep aquifer. The average vertical gradient between monitoring wells screened in the shallow and middle aquifer is 0.5 ft/ft downward in the north-central and southern edges of the NAWC. Between the shallow and middle aquifers, the average vertical gradient in the northeastern corner of the NAWC is 0.13 ft/ft upward. This upward gradient indicates potential recharge of Windsor Branch immediately east of the NAWC from the shallow aquifer. The average hydraulic gradient between the middle and the deep aquifer is 1.3 ft/ft. For additional information on the geology and hydrogeology at the NAWC Indianapolis please refer to B&R Environmental (1997) and USGS (1997, 1998).

2.2 SITE HISTORY AND ENFORCEMENT ACTIVITIES

Building 1100, a mechanical testing facility, has a poured concrete floor with cast-in place utility trenches for routing of compressed air lines and hydraulic lines.

There are two monolithic concrete foundations for mounting vibration test equipment which are separate from the building floor. Although covered by steel plates, the gaps between the building floor and the isolation bases could be a pathway for release to soils beneath the floor if releases had occurred. The gaps are 14 inches wide and neck down to a few inches at the bottom. The distance from the floor to the surface of the soil at the bottom of the gap is 4 to 5 feet. There is no historical indication that contamination has impacted soils.

No historical data for the environmental condition of the area was available. The current condition of the area is typical of a mechanical test shop. The current floor slab appears sound, with no apparent large visual residues of spills or leaks which would be inconsistent with operations in these areas.

The NAWC Indianapolis, under the office of the Chief of Naval Operations (CNO) initiated an Environmental Compliance Evaluation (ECE) program to identify environmental compliance deficiencies, provide recommendations for corrective action, and establish a basis for future budgets. The first ECE was performed in October 1991. The next ECE was performed in 1994, at which time a total of 21 environmental media/program areas were evaluated. The ECE's are maintained on site. Environmental programs and procedures were typically updated to meet ECE deficiencies.

In anticipation of the transfer from the government to the private sector, an Environmental Baseline Survey (EBS) was prepared by Brown & Root (B&R) Environmental (March 1996) to document the results of a modified Phase I environmental site assessment. The site assessment was performed in accordance with the U.S. Department of Defense (U.S. DOD) requirement for property intended to be sold, leased, transferred or acquired. The EBS reported findings on the status of the NAWC Indianapolis property and off-base property based on visual inspections and a review of records.

The Remedial Investigation began with the collection of Phase I environmental samples from October through December 1996. Additional samples were added in September 1997. A Phase I Remedial Investigation report was issued in December 1997 which presented the analytical results and evaluated the potential human health risks associated with the NAWC facility. Based on these findings, additional Phase II samples were collected at selected areas during the spring and summer of 1998.

2.3 HIGHLIGHTS OF COMMUNITY PARTICIPATION

A Community Involvement Plan (CIP)(May 1997) was developed for NAWC Indianapolis that identifies a program to establish communication and information exchange between the Navy, and various federal, state and local agencies, and community agencies; and the public. Specifically, this provides a mechanism for the exchange of information between the BRAC Cleanup Team (BCT) and the public, primarily through the Restoration Advisory Board (RAB). The BCT and RAB periodically hold public meetings to provide full exchange of information and to provide an opportunity for public comment.

The Navy solicited input from the community for the Proposed Plan on the selected alternative for each response action. The Navy has set a public comment period from September 28, 1998 to October 27, 1998, and later extended it to November 11, 1998, to encourage public participation in the selection process. The comment period included a public meeting at which the Navy, with the EPA and IDEM, presented the Proposed Plan, answered questions, and accepted both oral and written comments. The

public meeting was held on October 14, 1998 from 7:00 PM to 9:00 PM at the Quality Inn East at 3525 North Shadeland Avenue in Indianapolis.

As indicated by the public notices, all documents pertinent to AOC 15 were made accessible to the public at the information repository located at the Warren Branch Library, 9701 East 21st Street, Indianapolis, Indiana.

2.4 SCOPE AND ROLE OF ACTION

The sites that required environmental investigations as part of the Remedial Investigation at NAWC Indianapolis comprised eighteen area of concern and one Installation Restoration (IR) site. This Decision Document addresses the contamination of the soil associated with one AOC: AOC 15 – Building 1100. This AOC was determined in the RI to be a relatively low risk site within the NAWC Indianapolis facility. The objective of the action described in the Decision Document is to maintain this low level of risk by controlling the site for non-residential uses. The AOC will be addressed independent of the other AOCs and the IR. The other AOCs will be addressed in other Decision Documents, and the basewide groundwater conditions will also be evaluated in a separate document.

2.5 SUMMARY OF SITE CHARACTERISTICS

2.5.1 Geology

The geology of the AOC 15 is consistent with the geology found across the NAWC facility. Due to the shallow investigation depth, borings installed in AOC 15 only partially pentrated through the unconsolidated surficial fill and glacial deposits. Descriptions of the soil samples recorded on the boring logs indicate that across AOC 15, brown to gray silty clay with trace gravel was the predominant lithology encountered from the ground surface down the approximately 12 to 14 feet bgs.

2.5.2 Hydrogeology

No permanent monitoring wells were installed at AOC 15, thus hydraulic gradients, groundwater flow directions or velocity could not be determined at this site. According to visual observations of the soil moisture content in subsurface soil samples, the water table was encountered between 12 and 14 feet bgs. Groundwater flow in the shallow aquifer is expected to mimic the relatively flat surface topography

and flow to the southeast. It is believed that groundwater in the shallow aquifer will discharge into Pleasant Run.

2.5.3 Site Inspection of Building 1100: Mechanical Testing Facility (AOC 15)

On December 7, 1996 a floor and trench inspection was performed in Building 1100, located to the northeast of Building 1200. In general, the floor was in good condition and no significant routes for process material or chemical migration could be determined.

Two large shakers in this area were placed on a foundation separate from the surrounding floor. Heavy metal plates cover the space between the shaker foundation and the surrounding floor. Access to these plates was limited. Each trench was approximately 6 feet deep and tapered from 14 inches wide at the top to 6 inches wide at the bottom. The foundation of the building floor was cement block, while the foundation under the shaker appeared to be solid cement. The floor of the trench appeared to be open ground. The wall of the floor foundation was in good condition, and the shaker foundation showed no signs of stress or deterioration. Each trench contained some minor debris, but there was no evidence of any spill or leak. Due to the slope of the foundation, any spill or leak should have left a stain or discoloring of the cement. Because of the dimensions of the trench, sampling would have required physically entering the trench, which would have been a confined space entry. No samples were collected from AOC 15.

2.5.4 Nature and Extent

This section presents the results of the sampling and analysis of environmental samples collected at AOC 15. All data generated by the fixed-base laboratory were validated according to EPA National and Regional guidelines.

Three trench material samples were collected at AOC 15. One VOC (tetrachloroethene: C_{max} = 13 µg/kg), 20 SVOCs, and two PCBs (Aroclor 1254: C_{max} = 35 and Aroclor-1260: C_{max} = 17 µg/kg), were the only organics that were detected in the trench samples. Eighteen inorganics also were detected in the trench samples. The one VOC detected does not exceed any of the industrial direct contact benchmarks or soil to groundwater benchmarks.

Twenty SVOCs, including 16 PAHs, three phthalates and carbazole, were detected in samples from AOC 15. Of the SVOCs, fluoranthene had the maximum detection (690 µg/kg), followed by phenanthrene

(640 µg/kg), and pyrene (610 µg/kg). The concentrations of the remaining SVOCs ranged from 40 to 370 µg/kg. With the exception of bis(2-ethylhexyl)phthalate) (detected at two locations), all of the SVOCs were detected at one location (AOC15DP001). Benzo(a)pyrene exceeds the residential direct contact benchmark, but, none of the SVOCs exceed any of the industrial direct contact benchmarks or soil to groundwater benchmarks.

Antimony, cadmium, copper, lead, and tin are the only metals concentrations that exceed the upper tolerance limit for the background dataset (antimony, cadmium, and tin were not detected in the background samples). The concentration of copper and lead were three and eight times greater than the background concentrations, respectively. Thirteen of the maximum defections were at location AOC15DP003, with the other five maximum defections were at AOC15DP001.Twelve of the metals were detected in all three samples; however, antimony and cadmium only were detected in 1 and 2 samples, respectively. Lead exceeds the residential direct contact benchmark; none of the metals exceeds the industrial direct contact benchmarks or the soil to groundwater benchmarks.

Two PCBs (Aroclor-1254 and 1260) were also detected in the trench material. Aroclor-1254 and Aroclor-1260 were detected in two out of three and one out of three samples, respectively. Whereas both of the maximum concentrations were detected at AOC15DP001. Neither PCB exceeded the residential or industrial direct contact benchmarks or the soil to groundwater benchmarks.

2.6 SUMMARY OF SITE RISKS

During the RI, an analysis was conducted to estimate the health or environmental problems that could result if the soil and groundwater contamination at AOC 15 was not mitigated. This analysis is commonly referred to as a baseline risk assessment. In conducting this assessment, the focus was on health effects that could result from exposure to the soil and groundwater contaminants in both an industrial and a residential setting. The industrial setting considered the exposure by on-site workers, construction workers and adolescent trespassers. Residential exposure considered on-site exposure to the soil by future use of the site as residential property. At AOC 15, three soil samples were collected from two locations at the AOC, and no groundwater samples were collected. In samples collected during the RI, contaminants were detected in the soils at the AOC.

The concentrations were compared to risk assessment criteria for residential and non-residential use. Criteria that were used to evaluate direct contact exposures were EPA Region Ill Risk Based

Concentrations (RBC5), EPA Region IX Preliminary Remediation Goals (PRGs), IDEM Tier II Goals, and site-specific background concentrations. In addition, EPA Generic Soil Screening Levels (SSLs) and IDEM Tier II Goals were used to evaluate the potential for a chemical to migrate from the soil to the groundwater. If a chemical concentration in soil was found to be greater than one of the criteria (or 10 percent of PRG or RBC in the case of non-carcinogens), then the chemical was designated as a Chemical Of Potential Concern (COPC) and was considered for further risk analysis. Concentrations of inorganic chemicals were also compared to site specific background concentrations.

Concentrations of contaminants were all less than the non-residential criteria. Thus, for non-residential uses, no contaminants are considered COPCs. The concentrations of benzo(a)pyrene and lead were greater than screening criteria for residential use. Since the future anticipated used of the site were assumed to be non-residential, the residential criteria are not applicable and the risk level was not evaluated further. Iron was also detected at concentrations greater than the residential criteria, but less than the background concentration and was not evaluated further. The most restrictive criteria that were used for determining the COPCs use a risk level of 1.0×10^{-6} in the calculation of the criteria. Thus, it was not necessary to calculate risk levels since the risk of exposure for any non-residential receptor is less than the EPA criteria of 1.0×10^{-6}.

The available data and groundwater modeling suggested that the chemicals detected in the soil were not migrating off-site, therefore, risks based on off-site residential use of the groundwater were not evaluated. There are no on-site wells and the area is serviced by a public water supplier so risks by on-site consumers (present or future) were not evaluated.

The planned future use of the site is industrial, so the risks based on those uses were given more consideration than residential use. Alternatives for addressing the site were based on the continued industrial use of the site.

No ecological risk evaluations were performed because the AOC is located within the building and ecological exposures are negligible.

The summary of the analytical results and risk assessment tables from the RI report are included in Appendix B. A figure depicting the sample locations is also provided in Appendix B.

2.7 DESCRIPTION OF ALTERNATIVES

The alternatives for AOC 15 are presented below. Note that the RI for NAWC Indianapolis has been completed, but the Feasibility Study has not been developed. These alternatives were being presented in the Proposed Plan (TtNUS, 1998). The alternatives that were considered are as follows:

- Alternative 1: No Action
- Alternative 2: Institutional Controls

2.7.1 Alternative 1: No Action

The "No Action" alternative is evaluated at every site to establish a baseline for comparison. Under this alternative, no further action would be taken to prevent exposure to the contamination in the soil.

There are no capital costs, operations and maintenance costs, and present worth costs associated with this alternative. There is no implementation time associated with this alternative.

2.7.2 Alternative 2: Institutional Controls

Institutional controls will be put in place to maintain the industrial use of the sites. The alternative is consistent with the proposed use the property in the future. The institutional controls consists of deed restrictions that include:

- a clause restricting the land use to non-residential and specifically prohibiting uses such as, but not limited to, day care facilities and facilities for the elderly.

- a clause retaining the rights of access by the Navy, and Federal and State regulators for environmental investigations, inspections and/or remedial actions.

An Institutional Controls Plan (ICP) has been prepared to ensure the long term effectiveness of the institutional controls. The plan was developed according to EPA guidance. This plan includes a description of the areas controlled by the deed restrictions, description of site, identification of residual risk(s) presented, types of ICs imposed, proposed deed language implementing ICs, party responsible for monitoring the integrity and effectiveness of imposed control(s), procedures for reporting and enforcing

against IC violations, assurances regarding completion of the CERCLA five-year review process, IC recordation / notice requirements, and commitment to pre-transfer meeting.

Since contamination will remain on site and a remedial action, institutional controls, is implemented, a five-year review of the remedy is required. No routine monitoring is proposed for AOC 15 since the groundwater data, as reported in the RI report and Phase II Technical Memorandum, shows that there were no detections of contaminants above screening levels at sampling locations immediately downgradient of AOC 15.

There are no capital costs associated with this alternative although there will be some costs associated with routine administration and the five-year review (presented below). The implementation time to prepare and finalize the deed restriction language is estimated to be two months.

Note that this alternative does not employ any treatment or removal technologies. Human health and the environment is protected by this remedy without the need for further physical changes.

Total Five Year Costs(1)

	Total hours	Labor Costs	Airfare/Lodging per diem/auto costs	AOC 15(2) Costs
Routine Administration	10	$350		
Parcel Transfer				
Trip 1	12	$420	$556	
Trip 2	12	$420	$556	
Five Year Review	12	$420	$556	
Problem Resolution				
Number 1	12	$420		
Number 2	12	$420		
Total		$2,450	$1,668	$412

1 Total five year costs included costs associated with AOC 1, AOC 5, AOC 6, AOC 7, AOC 8, AOC 9, AOC 15, AOC 17, and AOC 18.
2 AOC 15 costs are based as a percentage (10%) of the total five year costs.

2.7.3 Other Alternatives

The current use of the facility and site is industrial. The intended future use of the site is industrial and the intended use of the facility is non-residential. Alternative 2 - Institutional Controls was evaluated and found to be protective of human health and the environment.

As required by the NCP, other alternatives were considered but were determined by the BCT to be not appropriate for the levels of contamination found at the AOC. Since Alternative 2 is protective of human health and the environment, no other alternatives were evaluated in detail. Other alternatives are variations of soil remediation, such as excavation and disposal. These alternatives share several general characteristics. All require capital expenditure for field work and disposal. All require an implementation time of six to twelve months for design, bidding, procurement, and site work.

Any of these other alternatives can be expected to be evaluated favorably with the nine criteria. However, the resulting protection of human health and environment is the same as the institutional controls. The costs for implementation of remediation alternatives provide no additional benefit compared to the institutional controls. Thus, a detailed evaluation of other alternatives was not made and other alternatives were not considered further.

2.8 SUMMARY OF COMPARATIVE ANALYSIS OF ALTERNATIVES

The preferred alternative for AOC 15 is Alternative 2 - Institutional Controls. Based on current information, this alternative would appear to provide the best balance of trade-offs among the alternatives with respect to nine criteria that EPA uses to evaluate alternatives. This section profiles the performance of the preferred alternative against the nine criteria, noting how it compares to the other alternatives under consideration. The nine criteria are summarized below.

Overall Protection of Human Health and Environment addresses whether or not a remedy provides adequate protection and describes how risks posed through each pathway are eliminated, reduced or controlled through treatment, engineering controls or institutional controls.

Compliance with ARARs addresses whether or not a remedy will meet all of the Applicable or Relevant and Appropriate Requirements of other Federal and State environmental statutes and/or provide grounds for invoking a waiver.

Long-term effectiveness and performance refers to the magnitude of residual risk and the ability of a remedy to maintain reliable protection of human health and the environment over time once cleanup goals have been met.

Reduction of toxicity, mobility, or volume through treatment is the anticipated performance of the treatment technologies that may be employed in a remedy.

Short-term effectiveness refers to the speed which the remedy achieves protection, as well as the remedy's potential to create adverse impacts on human health and the environment that may result during the construction and implementation period.

Implementability is the technical and administrative feasibility of a remedy, including the availability of materials and services needed to implement the chosen solution.

Cost includes capital and operations and maintenance costs.

State Acceptance indicates whether, based on its review of the RI and Proposed Plan, the State concurs with, opposes, or has no comment on the preferred alternative.

Community Acceptance indicates whether interested persons in the community support, have reservations about, or oppose the preferred alternative.

2.8.1 Analysis

Overall Protection of Human Health and Environment. All of the alternatives, except for the "no action" alternative would provide adequate protection of human health and the environment by implementing institutional controls or by removing the contaminants. The preferred alternative would implement institutional controls to minimize contact with the contaminants.

Compliance with ARARs. The preferred alternative is in compliance with Federal and State ARARs.

Long-term effectiveness. The preferred alternative would be effective in the long run since the deed restrictions would be maintained through the implementation of an Institutional Controls Plan.

The “no action” alternative provides no long-term safeguards against exposure. Therefore, the alternative will not be considered further.

Reduction of toxicity, mobility, or volume through treatment. The preferred alternative offers no change in the toxicity, nobility or volume of contaminants.

Short-term effectiveness. The preferred alternative can be instituted in a relatively short time. There is no change in the situation white waiting for implementation.

Implementability. The preferred alternative has few administrative issues that will affect its implementation. Deed restrictions have been used in the past at other facilities.

Cost. The preferred alternative has no capital cost and no annual operations and maintenance costs. There are costs associated with the five year review.

State Acceptance. The preferred alternative is in compliance with State ARARs. The State has viewed the preferred alternative favorably.

Community Acceptance. Community acceptance is described in Section 3.0 Responsiveness Summary.

2.9 SELECTED REMEDY

The selected remedy will provide a satisfactory level of risk relative to the current and future intended uses of the site. The level of risk is maintained but with little expenditure. The existing concrete foundation acts as a barrier to exposure to soils. The selected remedy Is believed to provide the best balance in trade-offs among the alternatives with respect to the evaluation criteria. The selective remedy, however, does not result in unrestricted use of the site and five-year review of the site will be required.

Alternatives that employ treatment were not considered practical since the existing foundation acts as a barrier that prevents exposure to subsurface contaminants reducing the need for removal or treatment.

2.10 STATUTORY DETERMINATIONS

The selected remedy is protective of human health and the environment, complies with Federal and State requirements that are legally applicable or relevant and appropriate to the remedial action, and is cost-effective. This remedy utilizes permanent solutions and alternative treatment technologies to the maximum extent practical for this site. However, because treatment of the principal threats of the site was not found to be practical, this remedy does not satisfy the statutory preference for treatment as a principal element of the remedy. The size, location, and amount of contamination found at AOC 15 precludes a remedy in which contaminants would be treated effectively.

Because this remedy will result in contamination remaining on-site, the Navy will conduct a review every five years after the commencement of remedial action to ensure that the remedy continues to provide adequate protection of human health and the environment.

3.0 RESPONSIVENESS SUMMARY

A Proposed Plan for AOC 15 was issued in September 1998. Subsequent to this, the Navy solicited input from the community on the selected alternative. The Navy set a public comment period from September 28, 1998 to October 27, 1998, which was later extended to November 11, 1998, to encourage public participation in the selection process. The comment period included a public meeting at which the Navy, with the EPA and IDEM, presented the Proposed Plan, answered questions, and accepted both oral and written comments. The public meeting was held on October 14, 1998 from 7:00PM to 9:00PM at the Quality Inn East at 3525 North Shadeland Avenue in Indianapolis. As indicated by the public notice for the meeting, all documents pertinent to AOC 15 were made available to the public at the information repository located at the Western Branch Library, 9701 East 21st Street, Indianapolis, Indiana.

3.1 COMMUNITY PREFERENCES

Comments were received from one person. The comments concurred with the deed restrictions to limit the land use to industrial, and expressed concern for the land use to be changed to residential or permit day care facilities without extensive investigation. The comments were general and did not specify an AOC.

3.2 INTEGRATION OF COMMENTS

As these comments only concurred with the selected remedies identified, no integration of these comments were warranted.

3.3 COMMENT RESOLUTION

Please refer to the following pages for USEPA and IDEM comments and resolutions. Note that 'Draft' comments were addressed in working meetings, by teleconference or in revised documents. A formal written response was not provided for these comments.

RECORD OF USEPA AND IDEM
COMMENTS AND RESOLUTIONS

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
We make Indiana a cleaner, healthier place to live

Frank O'Bannon
Governor

John M. Hamilton
Commissioner

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Indianapolis, Indiana 46206-6015
(317) 232-8603
(800) 451-6027
www.ai.org/idem

November 17, 1998

Mr. Carl Loop
SOUTHDIV NAVFACENGCOM
2155 Eagle Drive
North Charleston, SC 29419-9010

Dear Mr. Loop:

Re: IDEM staff comments regarding the Proposed Plans (PPs) for AOCs 1, 5, 6, 7, 8, 9, 15, 17, and 18

Staff of the Indiana Department of Environmental Management have reviewed the above referenced documents. Our review generated the following comments:

GENERAL COMMENTS:

Section 7.0 - Community Participation:
In paragraph 2, the third sentence should read: "The Proposed Plan meets the applicable or relevant and appropriate federal and state requirements." In addition, this section should explain how public comments will be addressed. Please verify if a copy of the administrative record is available at the Warren Branch Library. If this is not the case, delete the statement in the last paragraph of this section.

SPECIFIC COMMENTS:

AOC 5:

Section 2.2 - Site History:
The entire sanitary sewer line will be transferred. However, the sewer lines, and the land around the sewer lines (easement), is transferable if the sewer line is within the transfer parcel 1. Clarification in the text is needed.

Figure 2-2:
The hatched areas on the map represent the transferable soils around some parts of the sewer system. However, the legend on the figure does not reflect that. A statement explaining that fact is needed in the text of the PP.

AOC 7:

Section 2.2 - Site History:
The entire sanitary sewer line will be transferred. However, the sewer lines, and the land around the sewer lines (easement) is transferable if the sewer line is within the transfer parcel 1. Clarification in the text is needed.

Figure 2-2:
The hatched areas on the map represent the transferable soils around some parts of the sewer system. However, the legend on the figure does not reflect that. A statement explaining that fact is needed in the text of the PP.

CONCLUSION:

It is IDEM staff's understanding that Institutional Control Plans (ICPs) will be attached to the Proposed Plans/Decision Documents. Once these ICPs are approved by IDEM and the U.S. EPA, IDEM staff will issue concurrence with the subject PPs. If you have any questions regarding the above comments, please contact me at (317) 308-3133.

Sincerely,

Gabriele Hauer, Project Manager
Defense Environmental Restoration Program
Office of Environmental Response

GHH:mg
cc: Rex Osborn, DERP, IDEM
Denise Boone, U.S. EPA Region V
Mark Sladic, Tetra Tech NUS
Joe Logan, Tetra Tech NUS
Alan Shoultz, Navy-Southdiv.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF

SRF-5J

December 1, 1998

Carl Loop
Department of the Navy
SOUTHDIV NAVFACENGCOM
Code 18E2BM
2155 Eagle Drive
Post Office Box 190010
North Charleston, SC 29419-9010

RE: Proposed Plans for Areas of Concern 1, 5, 6, 7, 8, 9, 15, 17 and 18 for the Naval Air Warfare Center, Indianapolis, Indiana.

Dear Mr. Loop:

The United States Environmental Protection Agency (USEPA) has reviewed the Proposed Plans for Areas of Concern (AOCs) 1, 5, 6, 7, 8, 9, 15, 17 and 18 for the Naval Air Warfare Center (NAWC), Indianapolis, Indiana. The preferred alternatives that the Navy has chosen for each of the AOCs are acceptable. However, the Navy must realize that there are costs associated with institutional controls (ICs) that are deed restrictions. The Navy must include an estimate of the costs for ICs.

The USEPA will not concur until the following are completed: the community acceptance of the preferred alternative, the Institutional Control Plan(s), and the finalized decision documents.

If the Navy as the lead agency reevaluates their preferred alternative for the AOCs, changes a component of the preferred remedy, or chooses to implement a remedy other than the preferred alternative, any such changes must be made in accordance with CERCLA Section 117(b).

If you have any questions concerning this letter, please feel free to contact me at (312) 886-6217.

Sincerely,

Denise Boone

Denise Boone
Remedial Project Manager

cc: Gabriele Hauer, IDEM

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661 Andersen Drive ▪ Pittsburgh, Pennsylvania 15220-2745
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PITT 03-9-043

March 5, 1999

Project Number 7173

Department of the Navy
SOUTHNAVFACENGCOM
ATTN: Carl Loop (Code 1871)
2155 Eagle Drive
North Charleston, South Carolina 29406

Reference: CLEAN Contract Number N62467-94-D-0888
Contract Task Order 0012

Subject: Decision Documents for AOC 1
Naval Air Warfare Center Indianapolis

Dear Mr. Loop:

In accordance with your request, please find enclosed three copies of the finalized Decision Document for AOC 1. The second part of the AOC 1 Decision Document submittal is the Institutional Control Manual and ICP for AOC 1. We believe the ICM is compliant with the most recent information provided by U.S. EPA. Upon regulatory concurrence, it is the Navy's intent to proceed as quickly as possible to complete the Decision Documents for the other AOCs in Parcel 1. These include AOCs 5, 6, 7, 8, 9, 15, 17, and 18.

Additionally, please see responses to IDEM comments. EPA said in a December 1, 1998 letter that they would not provide comments prior to community acceptance, completion of an ICP and finalized DD. The Navy feels these conditions have now all been met.

If you have any questions, feel free to call me at (412) 921-8216.

Sincerely,

Mark Sladic, P.E.
Task Order Manager

MS/gp

Enclosures

cc: Gabriele Hauer, IDEM
Denise Boone, USEPA
Alan Shoultz (w/o enclosures)
File 7173

IDEM COMMENTS REGARDING PROPOSED PLANS (PPs) FOR AOCs 1,5,6,7,8, 9, 15, 17, and 18

GENERAL COMMENTS:

1. **COMMENT:** **Section 7.0 – Community Participation**: In paragraph 2, the third sentence should read: "The Proposed Plan meets the applicable or relevant and appropriate federal and state requirements." In addition, this section should explain how public comments will be addressed. Please verify if a copy of the administrative record is available at the Warren Branch Library. If this is not the case, delete the statement in the last paragraph of this section.

   RESPONSE

a. The Navy agrees. This sentence in question some how got truncated and was missed. This will be corrected in the Decision Document.

b. A paragraph stating how the public comments will be addressed is located at the top of page 7-2. This is compliant with the EPA ROD guidance. No changes to the text are necessary.

c. A copy of the Administrative Record is located in the Warren Branch Library.

SPECIFIC COMMENTS:

AOC5:

1. **COMMENT:** **Section 2.2 – Site History:** The entire sanitary sewer line will be transferred. However, the sewer lines, and the land around the sewer lines (easement), is transferable if the sewer line is within the transfer parcel 1. Clarification in the text is needed.

   RESPONSE: The Navy agrees. This paragraph will be re-written to clarify this issue in the Decision Document.

2. **COMMENT Figure 2.2.** The hatched areas on the map represent the transferable soils around some parts of the sewer system. However, the legend on the figure does not reflect that. A statement explaining that fact is needed in the text of the PP.

   RESPONSE: The Navy agrees. A statement will be added to the text to explain the hatched areas on Figure 2-2. This change will be reflected in the Decision Document.

AOC 7:

1. **COMMENT:** **Section 2.2 – Site History:** The entire sanitary sewer line will be transferred. However, the sewer lines and the land around the sewer lines (easement) is transferable if the sewer line is within the transfer parcel 1. Clarification in the text is needed.

   RESPONSE: The Navy Agrees. This paragraph will be re-written to clarify this issue in the Decision Document.

2. **COMMENT:** **Figure 2-2:** The hatched areas on the map represent the transferable soils around some parts of the sewer system. However, the legend on the figure does not reflect that. A statement explaining that fact is needed in the text of the PP.

   RESPONSE: The Navy agrees. A statement will be added to the text to explain the hatched areas on Figure 2-2. This change will be reflected in the Decision Document.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF

SRF-5J

July 26, 1999

Carl Loop
Department of the Navy
SOUTHDIV NAVFACENGCOM
Code 18E2BM
2155 Eagle Drive
Post Office Box 190010
North Charleston, SC 29419-9010

RE: Decision Documents for Areas of Concern #5, 7, 9, 15, 17, and 18 for the Naval Air Warfare Center, Indianapolis, Indiana.

Dear Mr. Loop:

The United States Environmental Protection Agency (USEPA) has reviewed the Decision Documents (DDs) for Areas of Concern (AOCs):

5 - Transferable Portion of North-South Sanitary Sewer
7 - Transferable Portion of East-West Storm Sewer
9 - Northwest Corner of Building 3000
#15 - Building 1100
#17 -Transferable Portion of Sentry Drive
#18 - Northeast Land Scar Area

The DDs were received on July 7, 1999. The remedies that the Navy has selected are acceptable, however, the Navy has not provided the AOC-specific Institutional Control Plan (ICPs) as requested. In the USEPA's response to the proposed plans (dated December 1, 1998), it clearly stated that the USEPA could not concur until the following were completed: the community acceptance of the preferred alternative, the Institutional Control Plan(s), and the finalized decision documents. Two of the requirements have been satisfied.

Institutional controls must be clearly identified and defined, and their purpose and method of implementation should be clearly set forth in the decision document by way of the ICP as stated in the proposed plans. It is important to note that generally referring to or identifying an institutional control in a DD is not in itself an institutional control, because an institutional control must be implemented in order to achieve its objective, just as an engineering remedy described in a DD is

then designed and constructed. Additionally, the ICP must be included in the administrative record. The ICP Manual is not a substitute for the ICP, because the manual is only for the future property owner. The manual was developed so that the future property owner could have the ICPs in their possession without having to request access to the administrative record. The BRAC Closure Team agreed that all of abovementioned DDs were to follow the same format as the DD for AOC #1- Former Plating Area, Building 1000.

In Section 3.0 - Responsiveness Summary, please include a copy of the USEPA's and the Indiana Department of Environmental Management's (IDEM) comments on the proposed plan/DD and the Navy's responses to the comments in the next revision.

Please note that this is not a concurrence. The above deficiencies must be addressed before we can give a concurrence.

If you have any questions concerning this letter, please feel free to contact me at (312) 886-6217.

Sincerely,

Denise Boone

Denise Boone
Remedial Project Manager

cc: Sean Grady, IDEM
Alan Shoultz, SOUTHDIV
Mark Sladic, TtNUS

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PITT 07-9-201

July 27, 1999

Project Number 7173

Department of the Navy
SOUTHNAVFACENGCOM
ATTN: Carl Loop (Code 1871)
2155 Eagle Drive
North Charleston, South Carolina 29406

Reference: CLEAN Contract Number N62467-94-D-0888
Contract Task Order 0012

Subject: Decision Documents for Parcel 1
Naval Air Warfare Center Indianapolis

Dear Mr. Loop:

Please find enclosed three copies of change pages for the Parcel 1 AOCs.

1. **Instructions for the material attached to this letter:** At the recent BCT meeting, Sean pointed out that the Parcel 1 Decision Documents (DD) submitted on July 2 are lacking the site specific Institutional Control Plans. These DDs were to be revised in the same format as the signed AOC 1 DD. The AOC 1 DD has three appendices. The first is the local groundwater flow map. This map is not relevant for the other Parcel 1 DDs, and so is correctly excluded (since there is no groundwater remedy associated with these other AOCs). The second appendix for AOC 1 is the site-specific analytical summary, from the remedial investigation. The third appendix for AOC 1 is the site-specific Institutional Control Plan (ICP). It is this third appendix that has been inadvertently excluded. (However, the ICPs have been available in the Institutional Contol Manual for Parcel 1 which accompanied the Parcel 1 DD volume).

   Therefore, we are sending to the same distribution, which received the original DDs, a revised table of contents (TOC) identifying the appendix, plus the content of the missing appendix (the ICP). Please replace the TOC in each DD, and add the appendix contents to the end of each DD.

2. **Navy plan for packaging the appropriate DDs to support the initial parcel transfer:** Note that the parcel delineated for initial transfer is being identified as Parcel 1A, and contains only a subset of the AOCs included in the Parcel 1 documents. Upon regulatory concurrence and signature of the DDs included in the book titled '*Parcel 1 Decision Documents',* the DDs for the following AOCs will be copied from that book and collected in a separate volume titled *'Parcel 1A Decision Documents'*. These include:

   - AOC 5 – transferable portion of north-south sanitary sewer
   - AOC 7 – transferable portion of east-west storm sewer
   - AOC 17 – transferable portion of sentry drive
   - AOC 18 – northeast land scar area

At the same time, the Institutional Control Manual for Parcel 1A will be prepared, using just the individual ICPs for the four AOCs identified above. These ICPs have already been submitted for regulatory review in the July 2 submittal of the *'Parcel 1 Institutional Control Manual.'*

If you have any questions, feel free to call me at (412) 921-8216.

Sincerely,

Mark Sladic, P.E.
Task Order Manager

MS/kf

Enclosures

cc: Sean Grady, IDEM (w/enclosure)
Gary Schafer, USEPA (w/enclosure)
Alan Shoultz (w/o enclosures)
Mark Perry, TtNUS (w/enclosure)
Debra Wroblewski/DER, TtNUS (w/o enclosures)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF

SRF-5J

July 28, 1999

Carl Loop
Department of the Navy
SOUTHDIV NAVFACENGCOM
Code 18E2BM
2155 Eagle Drive
Post Office Box 190010
North Charleston, SC 29419-9010

RE: Decision Documents for Areas of Concern #5, 7, 9, 15, 17, and 18 for the Naval Air Warfare Center, Indianapolis, Indiana.

Dear Mr. Loop:

The United States Environmental Protection Agency (USEPA) has reviewed the Decision Documents (DDs) for Areas of Concern (AOCs):

5 - Transferable Portion of North-South Sanitary Sewer
7 - Transferable Portion of East-West Storm Sewer
9 - Northwest Corner of Building 3000
15 - Building 1100
17 -Transferable Portion of Sentry Drive
18 - Northeast Land Scar Area

The revised pages were received on July 28, 1999. The USEPA concurs with remedies that the Navy has selected. However, in Section 3.0 - Responsiveness Summary, please include a copy of the USEPA's and the Indiana Department of Environmental Management's (IDEM) comments on the proposed plan/DD and the Navy's responses to the comments.

If you have any questions concerning this letter, please feel free to contact me at (312) 886-6217.

Sincerely,

Denise Boone
Remedial Project Manager

cc: Sean Grady, IDEM
Alan Shoultz, SOUTHDIV
Mark Sladic, TtNUS

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PITT 08-9-050

August 6, 1999

Project Number 7173

Department of the Navy
SOUTHNAVFACENGCOM
ATTN: Carl Loop (Code 1871)
2155 Eagle Drive
North Charleston, South Carolina 29406

Reference: CLEAN Contract Number N62467-94-D-0888
Contract Task Order 0012

Subject: Decision Documents for Parcel 1
Naval Air Warfare Center Indianapolis

Dear Mr. Loop:

Please find enclosed three copies of change pages for the Parcel 1 AOCs.

1. **Instructions for the material attached to this letter:** Pursuant to their letter dated July 28, regarding the Decision Documents for this site, the EPA has requested that a copy of the USEPA's and the Indiana Department, of Environmental Management's. (IDEM) comments on the proposed plan/DD and the Navy's responses to the comments be included with these documents. Therefore, please replace the following pages:

   - The updated table of contents (identifying Section 3.3 Comment Resolution), and,
   - Page 3-1

   Following Page 3-1, please insert the pages following the title page 'USEPA and IDEM Comments and Resolutions.' Note that the content of each group is identical, however the contents page and page 3-1 contain a header in the upper right corner which indicate which section the change pages should be inserted in.

   As the remedy for AOC 6 and AOC 8 are 'no further action', these AOCs do not have change pages. This 'is consistent with EPA's July 28 letter.

2. **Schedule:** The Navy believes that the absence of these comment letters has not presented a material hurdle to completion of the regulatory review for these documents. The team schedule specified that following a 30-day regulatory review period, the date of concurrence on the Decision Documents was to be August 5. The Navy would appreciate if the EPA can now remove the signature pages from one set of the Decision Documents and sign these in the appropriate locations. Afterwards, please forward

these to the IDEM for signature. Following IDEM signature, the Navy requests that IDEM please forward them to Southdiv, attention Carl Loop, for final signature. When Southdiv returns the signed pages to us, we will provide copies for inclusion in all outstanding sets of Decision Documents.

If you have any questions, feel free to call me at (412) 921-8216.

Sincerely,

Mark Sladic, P.E.
Task Order Manager

MS/kf

Enclosures

cc: Sean Grady, IDEM (w/enclosure)
Gary Schafer, USEPA (w/enclosure)
Alan Shoultz (w/o enclosures)
Mark Perry, TtNUS (w/enclosure)
Debra Wroblewski/DER, TtNUS (w/o enclosures)

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
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August 17, 1999

Mr. Carl Loop
Department of the Navy
SOUTHDIV NAVFACENGCOM
Code 18E2BM
2155 Eagle Drive
Post Office Box 190010
North Charleston, SC 29419-9010

Dear Mr. Loop:

Re: Decision Document for Areas of Concern #5, 6, 7, 8, 9, 15, 17, and 18 for the Naval Air Warfare Center, Indianapolis, Indiana

Staff of the Indiana Department of Environmental Management (IDEM) have reviewed the above referenced document and has determined that it is acceptable providing the Navy address the following comments:

GENERAL COMMENT

An executive summary should be incorporated to give the readers an understanding of what this document is and why it was developed. Also, the title of this report should be changed to more accurately reflect the parcel name.

SPECIFIC COMMENTS

AOC 6, Page 2-13, Section 2.9: Some language in this section is not needed. Since there was no contamination, no risk, and no action is required for this AOC, the second sentence in the first paragraph continuing through the end of the page should be removed. Revision of this section may be needed.

AOC 8, Page 2-13, Section 2.9: Again, some language in this section is not needed. Since there was no contamination, no risk, and no action is required for this AOC, the third sentence in the first paragraph continuing through the end of the page should be removed. Revision of this section may be needed.

If you have any questions concerning this letter, please feel free to contact me at (317) 308-3121.

Sincerely,

Sean K. Grady, Project Manager
Federal Programs Section
Office of Environmental Response

SKG:mg
cc: Alan Shoultz, SOUTHDIV
Mark Sladic, Tetra Tech NUS
Denise Boone, U.S. EPA

REFERENCES

B&R Environmental, March 1996, Environmental Baseline Survey - Naval Air Warfare Center Indianapolis, Indiana.

B&R Environmental, June 1996. Community Relations Plan - Naval Air Warfare Center Indianapolis, Indiana.

B&R Environmental, August 1996. Finding of Suitability to Lease and Environmental Baseline Survey for Lease - Naval Air Warfare Center Indianapolis, Indiana.

B&R Environmental, October 1996. Remedial Investigation Work Plan - Naval Air Warfare Center Indianapolis, Indiana.

Supporting documents: Field Sampling Plan
Health and Safety Plan
Quality Assurance Project Plan

B&R Environmental, November 1996. DRAFT Data Management Plan - Naval Air Warfare Center Indianapolis, Indiana.

B&R Environmental, November 1997. Phase I Remedial Investigation Report - Revision 1 - Naval Air Warfare Center Indianapolis, Indiana

IDEM (Indiana Department of Environmental Management), October 1995. Voluntary Remediation Program Resource Guide. Office of Environmental Response.

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Tetra Tech NUS, Inc., September 1998, Proposed Plan for AOC 15 - Building 1100 - Naval Air Warfare Center Indianapolis, Indiana.

Tetra Tech NUS, Inc., November 1998, Phase I and II Remedial Investigation Report - Revision 2 - Naval Air Warfare Center Indianapolis, Indiana.

U.S. EPA (United States Environmental Protection Agency), 1989. Guidance on Preparing Superfund Decision Documents - Interim Final. EPA/540/G-89/007. Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA (United States Environmental Protection Agency), 1990. National Contingency Plan. Federal Register Vol. 55 No. 46 pp. 8666-8865.

U.S. Geological Survey, 1997, Hydrogeology and Ground-Water Flow in the Vicinity of the Naval Air Warfare Center, Indianapolis, Indiana., Risch M. R. and R. F. Duwelius, U.S. Department of the Interior, U.S. Geological Survey, Indianapolis, Indiana, Final Report.

U.S. Geological Survey, 1998, Hydrogeology, Ground-Water Quality, Ground-Water flow a the Naval Air Warfare Center, Indianapolis, Indiana., Risch, M. R., U.S. Department of the Interior, U.S. Geological Survey, Indianapolis, Indiana, Draft Report.

AOC 15

APPENDIX A

REMEDIAL INVESTIGATION REPORT LABORATORY DATA AND RISK ASSESSMENT TABLES

TABLE 7-56
SUMMARY OF POSITIVE DETECTIONS IN TRENCH MATERIAL
AOC 15 - BUILDING 1000
NAVAL AIR WAREFARE CENTER INDIANAPOLIS
MARION COUNTY, INDIANA

SAMPLE NUMBER:	**BACKGROUND**	**A15DP00101**	**A15DP00101-D**	**A15DP00201**	**A15DP00301**					
SAMPLE DATE:		**05/06/98**	**05/06/98**	**05/06/98**	**05/06/98**					
PHASE:		**II**	**II**	**II**	**II**					
BORING:		**AOC15DP01**	**AOC15DP01**	**AOC15DP02**	**AOC15DP03**					
AOC:		**A15**	**A15**	**A15**	**A15**					
DEPTH:		**0 - 0.5**	**0 - 0.5**	**0 - 0.5**	**0 - 0.5**					
FIELD DUPLICATE OF:			**A15DP00101**							
VOLATILES (ug/kg)										
TETRACHLOROETHENE		13	13	10 J	4 J					
SEMIVOLATILES (ug/kg)										
ACENAPHTHENE		82 J	54 J	330 U	370 U					
ANTHRACENE		120 J	77 J	330 U	370 U					
BENZO(A)ANTHRACENE		280 J	210 J	330 U	370 UJ					
BENZO(A)PYRENE		190 J	190 J	330 U	370 UJ					
BENZO(B)FLUORANTHENE		370	240 J	330 U	370 UJ					
BENZO(G,H,I)PERYLENE		340 U	100 J	330 U	370 UJ					
BENZO(K)FLUORANTHENE		160 J	130 J	330 U	370 UJ					
BIS(2-ETHYLHEXYL)PHTHALATE		370	360	130 U	360 J					
BUTYLBENZYL PHTHALATE		60 J	450 U	330 U	370 UJ					
CARBAZOLE		95 J	67 J	330 U	370 U					
CHRYSENE		310 J	240 J	330 U	370 UJ					
DI-N–BUTYL PHTHALATE		45 J	86 J	330 U	370 U					
DIBENZO(A,H)ANTHRACENE		52 J	450 U	330 U	370 UJ					
DIBENZOFURAN		40 J	450 U	330 U	370 U					
FLUORANTHENE		690	500	330 U	370 U					
FLUORENE		81 J	450 U	330 U	370 U					
INDENO(1,2,3-CD)PYRENE		140 J	110 J	330 U	370 UJ					
NAPHTHALENE		37 J	450 U	330 U	370 U					
PHENANTHRENE		640	440 J	330 U	370 U					
PYRENE		610	450	330 U	370 UJ					
PESTICIDES/PCBS (ug/kg)										
AROCLOR-1254		35 J	34 J	34 U	14 J					
AROCLOR-1260		15 R	17 J	34 U	8.5 R					
METALS (mg/kg)										
ALUMINUM	22217	1480 J	1990 J	1580 J	5440 J					

Background value for inorganics are the 95% Upper Tolerance Limit (UTL) which is based on the background data set.
* - Indicates the concentration exceeds background.
Blank space indicates sample not analyzed for that particular compound.

TABLE 7-56
SUMMARY OF POSITIVE DETECTIONS IN TRENCH MATERIAL
AOC 15 - BUILDING 1000
NAVAL AIR WAREFARE CENTER INDIANAPOLIS
MARION COUNTY, INDIANA

SAMPLE NUMBER:	**BACKGROUND**	**A15DP00101**	**A15DP00101-D**	**A15DP00201**	**A15DP00301**					
SAMPLE DATE:		**05/06/98**	**05/06/98**	**05/06/98**	**05/06/98**					
PHASE:		**II**	**II**	**II**	**II**					
BORING:		**AOC15DP01**	**AOC15DP01**	**AOC15DP02**	**AOC15DP03**					
AOC:		**A15**	**A15**	**A15**	**A15**					
DEPTH:		**0 - 0.5**	**0 - 0.5**	**0 - 0.5**	**0 - 0.5**					
FIELD DUPLICATE OF:			**A15DP00101**							
ANTIMONY	NA	0.45 UJ	0.37 UJ	0.42 UJ	0.92 J *					
ARSENIC	21.3	2.2 J	3.7 J	3.2 J	8.1 J					
BARIUM	222	20 J	22.7 J	10.2 U	101 J					
CADMIUM	NA	1.9 J *	0.55 J *	0.05 UR	3.5 J *					
CALCIUM	914377	21900 J	177000 J	127000 J	114000 J					
CHROMIUM	27.1	9.2 J	7 J	6.4 J	26.2 J					
COBALT	22.5	1.7	2.9	2.2	6.8					
COPPER	30.3	14.1 J	21.2 J	8.7 J	92.2 J *					
IRON	30170	4810 J	7050 J	6110 J	14600 J					
LEAD	61.7	518 J *	22.1 J	4.2 J	200 J *					
MAGNESIUM	157362	41900 J	20800 J	33800 J	29500 J					
MANGANESE	2130	219 J	289 J	234 J	381 J					
NICKEL	108	5.7 U	7.6 U	8.4 U	21.1 J					
POTASSIUM	1832	563 J	614 J	446 J	1010 J					
TIN	NA	328 J *	4.5 UR	5.2 UR	236 J *					
VANADIUM	51.3	5.4 U	7.5 J	6.1 U	16.4 J					
ZINC	113	105 J	727 J	29 J	96.6 J					

Background value for inorganics are the 95% Upper Tolerance Limit (UTL) which is based on the background data set.
* - Indicates the concentration exceeds background.
Blank space indicates sample not analyzed for that particular compound.

Data validation was conducted in accordance with the EPA National Functional Guidelines for Organic and Inorganic Data Review and EPA Region V guidelines. The following data qualifiers were used during the data review process:

- U - Indicates that the analyte was not detected at the numerical detection limit. Nondetected results reported by the laboratory and positive results qualified due to laboratory or field blank contamination (false positives) are reported using this qualifier.

- BU - Indicates that the analyte was detected in the associated method blank but the result is considered to be a false positive as a result of method blank contamination.

- BJ – Indicates that the analyte was detected in the associated laboratory method blank. The stated result is qualified as estimated since the concentration exceeds the validation blank action level.

- UJ - Indicates that the analyte was not detected. However, the detection limit is estimated as a result of a noncompliance encountered during laboratory analysis. The associated detection limit is regarded as imprecise.

- J - Indicates that the analyte was detected and the associated numerical result is estimated or imprecise.

- UR - Indicates that the laboratory did not detect the analyte. However, the nondetected analyte is considered unreliable and unusable as a result of a gross technical deficiency.

- R - Indicates that the laboratory detected the analyte. However, the positive result is considered unreliable and unusable as a result of a gross technical deficiency.

The above qualifications are generally categorized as major and minor problems or deficiencies. Major problems are defined as those, which result in the rejection off a data. Such results are qualified either as R or UR. Minor problems are defined as those, which result in the estimation of a given data point. The following qualifiers identify data qualified as a consequence of minor problems: BU, BJ, UJ, and J.

TABLE 7-57

SELECTION OF COPCs FOR HUMAN HEALTH RISK ASSESSMENT
DIRECT CONTACT EXPOSURE - RESIDENTIAL LAND USE SCENARIO
AOC 15 - BUILDING 1000 - TRENCH MATERIAL
PHASE I AND II REMEDIAL INVESTIGATION
NAVAL AIR WARFARE CENTER INDIANAPOLIS
MARION COUNTY, INDIANA

Chemical	Frequency of Detection (1)	Range of Detection	Exposure Point Concentration	Average Concentration Positive Hits	Location of Maximum	EPA Region III Risk-Based Concentrations (2) Residential	EPA Region IX Preliminary Risk-Based Goals (3) Residential	Indiana Tier II Cleanup Goals (4) Residential	Soil Screening Level (5) Soil to Air	Upper Tolerance Limit for Background	Selected as a COPC? Residential Yes or No	Rationale for Contaminant Deletion or Selection (6)
Volatile Organic Compounds (ug/kg)												
[illegible]	1/3	4-11	11	[illegible]	AOC15DP01	[illegible]	[illegible]	[illegible]	11000	ND	No	BSL
Semivolatile Organic Compounds (ug/kg)												
[illegible]	1/3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	ND	No	BSL
[illegible]	1/3	130	130	130	[illegible]	[illegible]	[illegible]	[illegible]	—	ND	No	BSL
[illegible]	1/3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	ND	No	BSL
[redacted]	1/3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[redacted]	[illegible]	—	ND	[redacted]	ASL
[illegible]	1/3	[illegible]	[illegible]	[illegible]	[illegible]	870	[illegible]	[illegible]	—	ND	No	BSL
[illegible]	1/3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] (7)	[illegible] (7)	—	—	ND	No	BSL
[illegible]	1/3	180	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	ND	No	BSL
[illegible]	2/3	[illegible]-370	370	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	ND	No	BSL
[illegible]	1/3	60	60	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	ND	No	BSL
[illegible]	1/3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	—	ND	No	BSL
[illegible]	1/3	310	310	310	[illegible]	[illegible]	[illegible]	[illegible]	—	ND	No	BSL
[illegible]	1/3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	ND	No	BSL
[illegible]	1/3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	—	ND	No	BSL
[illegible]	1/3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	ND	No	BSL
[illegible]	1/3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	ND	No	BSL
[illegible]	1/3	81	81	81	[illegible]	[illegible]	[illegible]	[illegible]	—	ND	No	BSL
[illegible]	1/3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	ND	No	BSL
[illegible]	1/3	37	37	37	[illegible]	[illegible]	[illegible]	[illegible]	—	ND	No	BSL
[illegible]	1/3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] (7)	[illegible] (7)	—	—	ND	No	BSL
[illegible]	1/3	610	610	610	[illegible]	[illegible]	[illegible]	[illegible]	—	ND	No	BSL
PCBs (ug/kg)												
[illegible]	2/3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	—	ND	No	ASL
[illegible]	1/3	17	17	17	[illegible]	[illegible]	[illegible]	—	—	ND	No	BSL
Metals (mg/kg)												
[illegible]	3/3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	—	[illegible]	No	BSL, BKG
[illegible]	1/3	[illegible]	[illegible]	[illegible]	[illegible]	3.1	1	[illegible]	—	[redacted]	No	BSL
[illegible]	3/3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	No	BKG
[illegible]	3/3	[illegible]	151	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	No	BSL, BKG
[illegible]	3/3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[redacted]	No	BSL
[illegible]	3/3	[illegible]	[illegible]	[illegible]	[illegible]	—	—	—	—	[illegible]	No	NUT, BKG
[illegible]	3/3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] (8)	[illegible]	—	—	[illegible]	No	BSL, BKG
[illegible]	3/3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	—	[illegible]	No	BSL, BKG
[illegible]	3/3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	—	[redacted]	No	BSL
[illegible]	3/3	[illegible]	[illegible]	[illegible]	[illegible]	[redacted]		—	—	[illegible]	No	NUT, BKG
[redacted]	3/3	[illegible]	[illegible]	[illegible]	[illegible]	[redacted]		—	—	[redacted]		ASL
[illegible]	3/3	[illegible]	41000	[illegible]	[illegible]	—	—	—	—	[illegible]	No	NUT, BKG
[illegible]	3/3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[redacted]	—	—	[illegible]	No	BKG
[illegible]	1/3	21.1	21.1	21.1	[illegible]	[illegible]	[illegible]	[illegible]	13000	[illegible]	No	BSL, BKG
[illegible]	3/3	[illegible]	[illegible]	[illegible]	[illegible]	—	—	—	—	[illegible]	No	BSL, BKG
[illegible]	3/3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	—	[redacted]	No	BSL
[illegible]	3/3	[illegible]	18.4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	No	BSL, BKG
[illegible]	3/3	[illegible]	106	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	113	No	BSL, BKG

NOTES:
1 - Data from the following sample locations were included in the screening process: AOC15DP01, AOC15DP02, AOC15DP03,
2 - U.S. EPA Region III Risk-based Concentration Table, April 12, 1999.
3 - U.S. EPA Region IX Preliminary Remedial Goals, May 1, 1998.
4 - IDEM Voluntary Remediation Program Resource Guide, October, 1995.
5 - U.S. EPA Soil Screening Guidance, May 1996.
6 - Rationale Codes
Above Screening Levels (ASL)
Background Levels (BKG)
Essential Nutrient (NUT)
Below Screening Level (BSL)
7 - Value is naphthalene.
8 - Value is for trivalent chromium.
9 - OSWER screening level.
One-tenth the EPA Region III RBCs and EPA Region IX PRGs are presented for noncarcinogenic compounds.
Shaded bolded values indicate an exceedance of background and / or criteria.
ND - Not Detected
COPC - Chemicals of Potential Concern.

TABLE 7-58

SELECTION OF COPCs FOR HUMAN HEALTH RISK ASSESSMENT
DIRECT CONTACT EXPOSURE - NON RESIDENTIAL LAND USE SCENARIO
AOC 15 - BUILDING 1000 - TRENCH MATERIAL
PHASE I AND II REMEDIAL INVESTIGATION
NAVAL AIR WARFARE CENTER INDIANAPOLIS
MARION COUNTY, INDIANA

Chemical	Frequency of Detection (1)	Range of Detection	Exposure Point Concentration	Average Concentration Positive Hits	Location of Maximum	EPA Region III Risk-Based Concentrations (2) Non Residential	EPA Region IX Preliminary Risk-Based Goals (3) Non Residential	Indiana Tier II Cleanup Goals (4) Non Residential	Soil Screening Level (5) Soil to Air	Upper Tolerance Limit for Background	Selected as a COPC? Non Residential Yes or No	Rationale for Contaminant Deletion or Selection (6)
Volatile Organic Compounds (ug/kg)												
Tetrachloroethene	2/3	4-13	13	9	AOC15DP001	110000	19000	151250	11000	ND	No	BSL
Semivolatile Organic Compounds (ug/kg)												
Acenaphthene	1/3	82	82	82	AOC15DP001	12000000	[illegible]	[illegible]	--	ND	No	BSL
Anthracene	1/3	120	120	120	AOC15DP001	[illegible]	[illegible]	[illegible]	--	ND	No	BSL
Benzo(a)anthracene	1/3	290	290	290	AOC15DP001	7800	2900	78480	--	ND	No	BSL
Benzo(a)pyrene	1/3	190	190	190	AOC15DP001	780	290	7850	--	ND	No	BSL
Benzo(b)fluoranthene	1/3	370	370	370	AOC15DP001	7800	2900	78480	--	ND	No	BSL
Benzo(g,h,i)perylene	1/3	140	140	140	AOC15DP001	8200000 (7)	19000 (7)	--	--	ND	No	BSL
Benzo(k)fluoranthene	1/3	160	160	160	AOC15DP001	78000	29000	784830	--	ND	No	BSL
Bis(2-ethylhexyl)phthalate	2/3	390-370	370	385	AOC15DP001	410000	210000	4142890	31000000	ND	No	BSL
Butylbenzyl Phthalate	1/3	69	69	69	AOC15DP001	41000000	[illegible]	10000000	[illegible]	ND	No	BSL
Carbazole	1/3	95	95	95	AOC15DP001	[illegible]	150000	--	--	ND	No	BSL
Chrysene	1/3	310	310	310	AOC15DP001	780000	290000	7848210	--	ND	No	BSL
Dibenzo(a,h)anthracene	1/3	42	42	42	AOC15DP001	780	290	7850	--	ND	No	BSL
Dibenzofuran	1/3	40	40	40	AOC15DP001	[illegible]	310000	--	--	ND	No	BSL
Di-n-butyl Phthalate	1/3	48	48	48	AOC15DP001	20000000	11000000	10000000	2300000	ND	No	BSL
Fluoranthene	1/3	690	690	690	AOC15DP001	8200000	3700000	10000000	--	ND	No	BSL
Fluorene	1/3	91	91	91	AOC15DP001	8200000	3300000	10000000	--	ND	No	BSL
Indeno(1,2,3-cd)pyrene	1/3	140	140	140	AOC15DP001	7800	2900	78480	--	ND	No	BSL
Naphthalene	1/3	37	37	37	AOC15DP001	[illegible]	19000	10000000	--	ND	No	BSL
Phenanthrene	1/3	640	640	640	AOC15DP001	4100000 (7)	19000 (7)	--	--	ND	No	BSL
Pyrene	1/3	610	610	610	AOC15DP001	6100000	2600000	10000000	--	ND	No	BSL
PCBs (ug/kg)												
Aroclor-1254	2/3	14-35	35	24.5	AOC15DP001	2900	1900	--	--	ND	No	BSL
Aroclor-1260	1/3	17	17	17	AOC15DP001	2900	[illegible]	--	--	ND	No	BSL
Metals (mg/kg)												
Aluminum	3/3	1580-5440	5440	3093	AOC15DP003	200000	10000	--	--	22217	No	BSL, BKG
Antimony	1/3	0.82	0.82	0.82	AOC15DP003	82	75	515	--	[illegible]	No	BSL
Arsenic	3/3	3.2-4.1	4.1	3	AOC15DP003	3.8	3	3.2	750	11.5	No	BSL, BKG
Barium	2/3	22.1-101	101	61.6	AOC15DP003	14000	10000	10000	690000	222	No	BSL, BKG
Cadmium	2/3	1.9-3.6	3.5	2.7	AOC15DP003	100	93	1025	1800	[illegible]	No	BSL
Calcium	3/3	114000-219000	219000	183333	AOC15DP001	--	--	--	--	514977	No	NUT, BKG
Chromium	3/3	4.4-29.2	29.2	13.9	AOC15DP003	310000 (8)	450	--	--	27.1	No	BSL, BKG
Cobalt	3/3	2.2-4.8	4.8	3.97	AOC15DP003	12000	2900	--	--	25.5	No	BSL, BKG
Copper	3/3	4.7-82.2	82.2	40.7	AOC15DP003	8200	7600	--	--	[illegible]	No	BSL
Iron	3/3	9110-14000	14000	8253	AOC15DP003	61000	[illegible]	--	--	36175	No	NUT, BKG
Lead	3/3	4.2-519	519	241	AOC15DP001	--	1000	--	--	[illegible]	No	BSL
Magnesium	3/3	29500-41900	41900	35087	AOC15DP001	--	--	--	--	157952	No	NUT, BKG
Manganese	3/3	234-351	351	301	AOC15DP003	4100	4500	--	--	2130	No	BSL, BKG
Nickel	1/3	21.1	21.1	21.1	AOC15DP003	4100	3700	15000	13000	108	No	BSL, BKG
Potassium	3/3	449-1910	1019	898	AOC15DP003	--	--	--	--	1432	No	NUT, BKG
Tin	2/3	225 - 329	329	282	AOC15DP001	120000	10000	--	--	[illegible]	No	BSL
Vanadium	2/3	7.8-15.4	15.4	11.95	AOC15DP003	1400	1300	10000	--	51.5	No	BSL, BKG
Zinc	3/3	29-105	105	78.9	AOC15DP001	61000	10000	10000	--	114	No	BSL, BKG

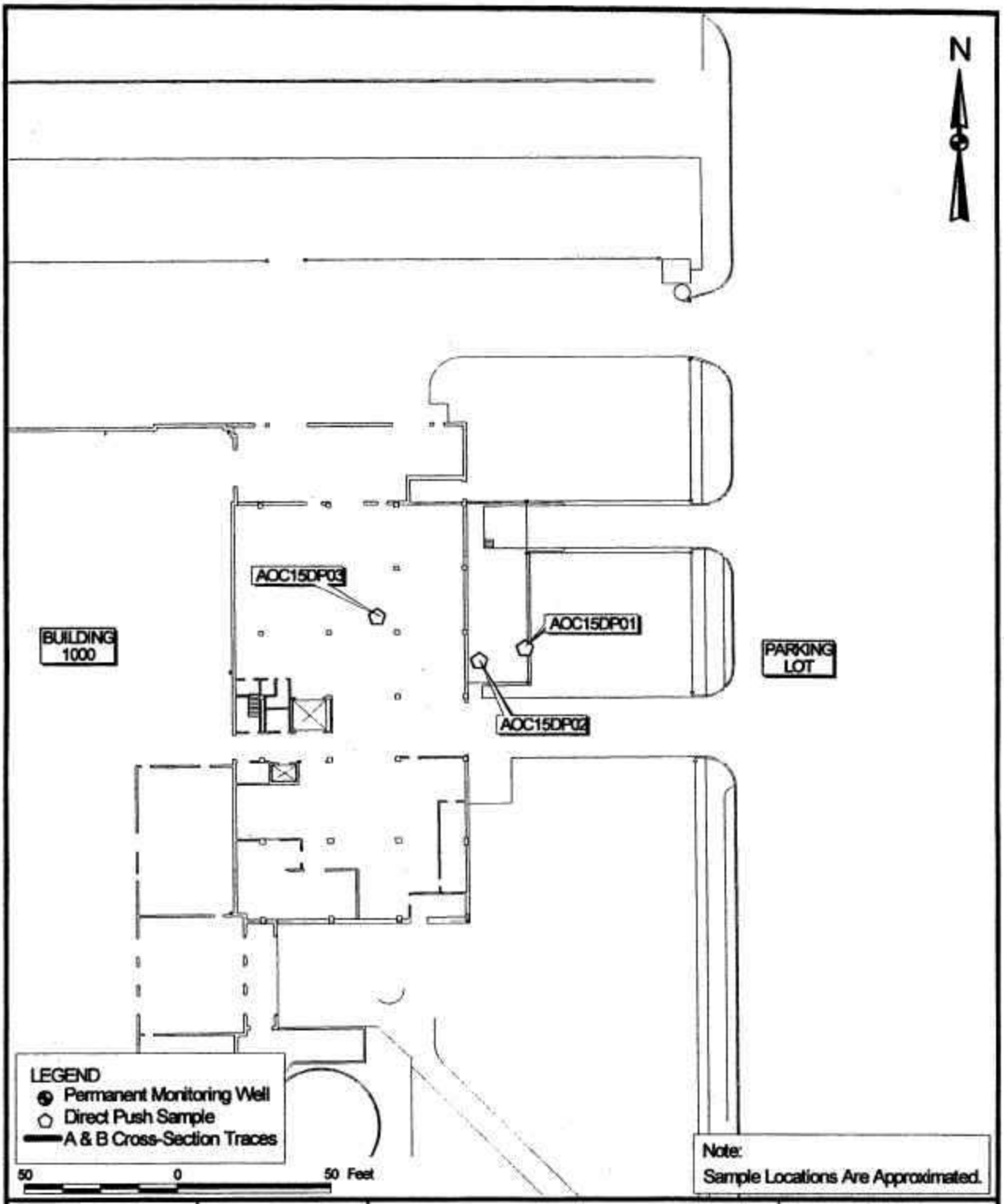
NOTES:
1 - Data from the following sample locations were included in the screening process: AOC15DP01, AOC15DP02, AOC15DP03,
2 - U.S. EPA Region III Risk-based Concentration Table, April 12, 1999.
3 - U.S. EPA Region IX Preliminary Remedial Goals, May 1, 1998.
4 - IDEM Voluntary Remediation Program Resource Guide, October, 1995.
5 - U.S. EPA Soil Screening Guidance, May 1996.
6 - Rationale Codes
Above Screening Levels (ASL)
Background Levels (BKG)
Essential Nutrient (NUT)
Below Screening Level (BSL)
7 - Value is naphthalene.
8 - Value is for trivalent chromium.
One-tenth the EPA Region III RBCs and EPA Region IX PRGs are presented for noncarcinogenic compounds.
Shaded bolded values indicate an exceedance of background and / or criteria.
ND - Not Detected
COPC - Chemicals of Potential Concern.

TABLE 7-59

SELECTION OF COPCs FOR HUMAN HEALTH RISK ASSESSMENT
GROUNDWATER PROTECTION EVALUATION
AOC 15 - BUILDING 1000 - TRENCH MATERIAL
PHASE I & II REMEDIAL INVESTIGATION
NAVAL AIR WARFARE CENTER INDIANAPOLIS

Chemical	Maximum Concentration Trench Material (1)	Indiana Tier II Cleanup Goals (2) Non Residential	Residential	EPA Region IX Soil Screening Level (3) Soil to Groundwater	Upper Tolerance Limit for Background	Selected as a COPC? Industrial Yes or No	Residential Yes or No
Volatile Organic Compounds (ug/kg)							
Tetrachloroethene	13	101250	12650	60	ND	No	No
Semivolatile Organic Compounds (ug/kg)							
Acenaphthene	82	10000000	10000000	570000	ND	No	No
Anthracene	120	10000000	10000000	12000000	ND	No	No
Benzo(a)anthracene	290	79450	880	2000	ND	No	No
Benzo(a)pyrene	150	7945	880	8000	ND	No	No
Benzo(b)fluoranthene	370	79450	880	8000	ND	No	No
Benzo(g,h,i)perylene	340	—	—	84000	ND	No	No
Benzo(k)fluoranthene	160	794500	8770	49000	ND	No	No
Bis(2-ethylhexyl)Phthalate	370	414(880	48710	3800000	ND	No	No
Butylbenzyl Phthalate	90	10000000	10000000	930000	ND	No	No
Carbazole	98	—	—	800	ND	No	No
Chrysene	310	7945210	88070	180000	ND	No	No
Dibenz(a,h)anthracene	62	7945	880	2000	ND	No	No
Dibenzofuran	40	—	—	—	ND	NC	NC
Di-n-Butyl Phthalate	68	10000000	8400000	2280000	ND	No	No
Fluoranthene	690	10000000	2180000	4200000	ND	No	No
Indeno(1,2,3-cd)pyrene	140	79450	880	14000	ND	No	No
Naphthalene	37	10000000	10000000	84000	ND	No	No
Phenanthrene	640	—	—	84000	ND	No	No
Pyrene	610	10000000	6130000	4200000	ND	No	No
PCBs (ug/kg)							
Aroclor-1254	36	—	—	1900	ND	No	No
Aroclor-1260	17	—	—	1900	ND	No	No
Metals (mg/kg)							
Aluminum	8440	—	—	—	22217	NC	NC
Antimony	0.82	818	108	5	[redacted]	No	No
Arsenic	8.1	512	61	20	21.3	No	No
Barium	191	10000	10000	1600	222	No	No
Cadmium	0.8	1020	136	6	[redacted]	No	No
Calcium	215000	—	—	—	914377	NC	NC
Chromium	28.2	—	—	36	27.1	No	No
Cobalt	6.8	—	—	—	22.5	NC	NC
Copper	62.2	—	—	—	[redacted]	NC	NC
Iron	14500	—	—	—	30170	NC	NC
Lead	514	—	—	—	[redacted]	NC	NC
Magnesium	41990	—	—	—	157382	NC	NC
Manganese	361	—	—	—	2190	NC	NC
Nickel	21.1	10000	5480	130	106	No	No
Potassium	1010	—	—	—	1652	NC	NC
Tin	230	—	—	—	[redacted]	NC	NC
Vanadium	16.4	10000	1560	6000	51.3	No	No
Zinc	106	10000	10000	12000	113	No	No

NOTES:
1 - Data from the following sample locations were included in the screening process: AOC15DP01, AOC15DP02, AOC15DP03,
2 - IDEM Voluntary Remediation Program Resource Guide, October, 1995.
3 - U.S. EPA Region IX Preliminary Remedial Goals, May 1, 1998.
Shaded bolded values indicate an exceedance of criteria.
ND - Not Detected
COPC - Chemicals of Potential Concern.
NC - No criteria available.



DRAWN BY: CHAD P. GLICK	DATE: 25-June-99	AOC 15 RI SAMPLING LOCATION BUILDING 1100 AOC 15 DECISION DOCUMENT NAVAL AIR WARFARE CENTER INDIANAPOLIS MARION COUNTY, INDIANA	CONTRACT NUMBER: 12
CHECKED BY:	DATE:		APPROVED BY: K. HENN DATE: 6/25/99
COST/SCHEDULE-AREA			APPROVED BY: — DATE: —
SCALE: AS NOTED			DRAWING NO.: FIGURE A-1 REV: 0

P:\GIS\7173\7173PHQ_SITES.APR 6/25/99 CPG *AOC 15 RI Sampling Location Bldg. 1100 Layout

AOC 15

APPENDIX B

INSTITUTIONAL CONTROL PLAN

AREA OF CONCERN (AOC) 15 IC PLAN

A. DESCRIPTION OF THE SITE:

AOC 15 consists of Building 1100 located within the NAWC Indianapolis facility. The NAWC is located in Marion County, east of downtown Indianapolis and is bordered by East 21st Street to the north, Arlington Avenue to the west, East 16th Street to the south and Windsor Branch, a surface water tributary to the east.

B. IDENTIFICATION OF RESIDUAL RISK(S) PRESENTED:

Soil sampling conducted at AOC 15 revealed no Chemicals of Potential Concern (COPCs) above federal and state risk-based screening criteria based on industrial exposures. Concentrations of benzo(a)pyrene and lead exceeded the federal and state risk-based screening criteria based on residential exposures. Since the future anticipated uses of the AOC 15 were assumed to be non-residential, the residential criteria are not applicable and potential risks to residential receptors were not evaluated. No groundwater samples were collected at AOC 15, although, the available data suggests that chemicals in soil are not migrating down gradient of the site. Based upon the data collected at this site, there are no human health risks associated with industrial use of AOC 15.

C. TYPES OF ICS IMPOSED:

The Navy intends on utilizing deed provisions to impose upon future transferees, their successors, assigns, lessees or licensees of the real property and facilities which encompass AOC 15, those restrictions necessary to ensure continued protection of human health and the environment. Those restrictions may be summarized as follows:

1. A prohibition against residential or residential-like uses of the property without prior authorization from the Navy (the reasonable anticipated future use at this site is industrial);

2. A requirement for annual compliance reporting by the future owner(s) of the NAWC property of the fact that only industrial uses of the property have been allowed.

D. PROPOSED DEED LANGUAGE IMPLEMENTING ICS:

The following land and groundwater use restriction provisions or their substantial equivalents will be incorporated into the quitclaim deed which shall effect the transfer of the property and facilities encompassing AOC 15 to any transferee:

1. The Grantee its successors, assigns, lessees, and licensees are prohibited from utilizing any portion of the real property and facilities encompassing AOC 15 as depicted in the attached survey for residential or residential type uses without the prior written authorization from the Navy. Such prohibited uses shall include, but not be limited to, nurseries, child or full time adult day care facilities or any playground area. Any additional site evaluation(s), risk assessment(s) and potential remedial measures as may be necessary if future usage of the property is for other than industrial purposes shall be without costs to the United States.

E. PARTY RESPONSIBLE FOR MONITORING THE INTEGRITY AND EFFECTIVENESS OF IMPOSED CONTROL(S):

The Navy intends on maintaining responsibility for overseeing the integrity and effectiveness of the IC remedy selected for AOC 15. The Navy plans on doing this by requiring annual IC compliance reporting by subsequent transferees of the property and facilities encompassing this site and by conducting all required CERCLA Five-Year Reviews.

F. PROCEDURES FOR REPORTING AND ENFORCING AGAINST IC VIOLATIONS

Should the Navy learn that any subsequent owner, occupant or third party has violated or caused to be violated any IC associated with AOC 15, the Navy shall evaluate at that time whether it would be appropriate to exercise the response authorities granted to it under CERCLA Section 104 (42 USC 9604), the Defense Environmental Restoration Program (DERP) (10 USC 2701 et. seq.) and Executive Order 12580, in order to ensure continued protectiveness of the site remedy implemented. The Navy will also evaluate the appropriateness of pursuing whatever rights it may have contractually or otherwise and/or for cost recovery under CERCLA Section 107 (42 USC 9607) against the violator of that IC(s). The Navy shall also promptly notify by letter the appropriate IDEM and U.S. EPA representatives upon learning of any IC violation(s) so that U.S. EPA can initiate whatever enforcement action U.S. EPA may believe to be appropriate at that time against such violator(s).

To ensure the opportunity for the Navy and U.S. EPA to be able to enforce the ICs associated with AOC 15, the Navy shall insert the following provisions or their substantial equivalent into the quitclaim deed which shall effect the transfer of the property encompassing AOC 15 to any third party:

1. The Navy reserves a right of access to all portions of the property for environmental investigation, remediation or other corrective actions. This reservation includes the right of access to and use of, to the extent permitted by law, available utilities at reasonable cost. These rights shall be exercisable in any case in which a remedial action, response action or corrective action is found

to be necessary by the Navy after the date of conveyance of the property, or in which access is necessary to carry out a remedial action, response action or corrective action on adjoining property. Pursuant to this reservation, the Navy, the U.S. EPA and the State of Indiana, and their officers, agents, employees, contractors and subcontractors shall have the right (upon reasonable notice to the Grantee or the then owner and any authorized occupant of the property) to enter upon the Property and conduct investigations and surveys, to include drillings, test-pitting, borings, data and record compilation, and other activities related to environmental investigation and to carry out remedial or removal actions as required or necessary under applicable authorities, including but not limited to monitoring wells, pumping wells, and treatment. Any such entry, including such activities, responses or remedial actions, shall be coordinated with the Grantee or its successors assigns, and tenants and shall be performed in a manner which minimizes interruption with Grantee's activities on the property.

2. The Grantee, its successors, assigns, lessees and licensees are prohibited from unreasonably interfering with any environmental investigation or remedial activities to be undertaken by the Navy on the property encompassing AOC 15 or surrounding NAWC property.

G. ASSURANCES REGARDING COMPLETION OF THE CERCLA FIVE-YEAR REVIEW PROCESS:

It is the Navy's intent to fully comply with the requirements of CERCLA as they may continue to apply to AOC 15 and to continue in part to oversee the long term effectiveness of the selected remedy through the timely undertaking and completion of CERCLA Five-Year Reviews.

H. IC RECORDATION / NOTICE REQUIREMENTS:

Those specific ICs reflected in this ICP and in the Proposed Plan (PP) and Decision Document (DD) for AOC 15 will be reflected in the quitclaim deed which shall be used to effect the transfer of the property encompassing AOC 15 and such deed will be recorded in the appropriate local property records office for the property by the transferee(s) of the real property upon which the site is situated. The transferee will be provided advance notice of those ICs and all pertinent site conditions by first being provided with a copy of this plan, the Environmental Baseline Survey (EBS) and requisite Finding of Suitability to Transfer (FOST) prepared by the Navy in connection with such transfer.

I. COMMITMENT TO PRE-TRANSFER MEETING:

To the extent appropriated funds may be available for such purposes, the Navy commits to meet at least five days before transfer with any and all prospective transferees of the real property and facilities encompassing AOC 15 in order to ensure that such transferee(s) fully understands the provisions of this plan.